

Grasslands Wildlife Management Area Proposed Expansion

Environmental Assessment, Land Protection Plan, and Conceptual Management Plan

San Luis National Wildlife Refuge Complex
Merced County, California

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“The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.”

- Theodore Roosevelt (1858-1919), 26th President of the United States

“If in the human economy, a squash in the field is worth more than a bushel of soil, that does not mean that food is more valuable than soil; it means simply that we do not know how to value the soil. In its complexity and its potential longevity, the soil exceeds our comprehension; we do not know how to place a just market value on it, and we never learn how. Its value is inestimable; we must value it, beyond whatever price we put on it, by respecting it.”

- Wendell Berry, Home Economics, 1995

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1 PURPOSE OF AND NEED FOR ACTION

1.1 Background

California's Central Valley consists of the Sacramento Valley in the north and the San Joaquin Valley in the south. Historically, the San Joaquin Basin's major wetland areas were found east and west of the San Joaquin River, presently in the general vicinity of the cities of Los Banos and Merced. Overflow wetlands were associated with the San Joaquin, Fresno, Chowchilla, Merced, Tuolumne, and Stanislaus Rivers which are the major drainages of this basin. Flood waters created an extensive wetland habitat consisting of permanent lakes, sloughs, ponds, and marshes as well as seasonal wetlands. Most of this habitat has been lost to agriculture.

The area with the most significant marshes remaining is termed the "Grasslands." This area is divided by the San Joaquin River into the West and East Grasslands. The Grasslands Wildlife Management Area (WMA) was established by the U.S. Fish and Wildlife Service (Service) to protect highly valuable and declining wetlands of California's San Joaquin Valley. Land within the WMA is privately owned and protected by conservation easements. Daily management of the easement area remains under private landowner control, the majority of the properties being managed for waterfowl hunting, cattle grazing, and small grain agriculture. The 38,410-acre, eastern division of the Grasslands WMA, was established in 1986 to complement the management of the adjoining San Luis and Merced National Wildlife Refuges, and assist in achieving goals for recovery of migratory waterfowl in North America's Pacific Flyway and federally listed threatened or endangered species. The western division of the Grasslands WMA consists of approximately 48,450 acres and was established in 1979.

Since establishment of the Grasslands WMA, conversion of California's valuable Central Valley pasture land (grasslands) and wildlife habitat has accelerated, threatening the existence of many San Joaquin Valley wildlife species. The *Recovery Plan for Upland Species of the San Joaquin Valley, California* (1998), has identified the area to the east of the existing WMA as an area essential to recovery of threatened and endangered species including the San Joaquin kit fox and blunt-nosed leopard lizard. This same area is recognized in the Central Valley Joint Venture and the *North American Waterfowl Management Plan* for its international importance in the life cycle of migratory waterfowl and shorebirds of North America's Pacific Flyway. This area also provides important habitats for several priority species listed in the Fish and Wildlife Service's Birds of Conservation Concern (USFWS, 2002).

Development is continuing at a steady pace, with a new campus of the University of California scheduled for Merced County, and with it, an associated population increase, including a projected student population of 25,000. The San Joaquin Valley Region ranked second in the growth of new urban land during 1996-1998 period, with Merced County losing 2,566 acres of farmland during the 1998-2000 period, 2,154 acres during the 1996-1998 period, 2,203 acres during the 1994-1996 period, and 1,393 acres during the 1992-1994 period. Conversion of wildlife compatible crops to orchards, dairies, poultry farms, fish farms, and vineyards is also

occurring at a relatively rapid pace in the Grasslands. Loss of the area's native habitat may be contributing to the continued decline of the region's migratory waterfowl and shorebird populations, landbirds, Birds of Conservation Concern, and threatened and endangered species.

1.2 Proposed Action

In light of the valuable resources in the Grasslands area and continuing threats to these resources, the Service proposes to expand the eastern division of the Grasslands WMA. The expanded WMA would include between 13,800 and 46,400 additional acres. This proposed expansion would allow the Service to conserve, protect, and restore native grasslands, vernal pools, riparian corridors and wildlife compatible crops through purchase of perpetual conservation easements. The Service does not anticipate, nor propose fee-title acquisition at this time for the project study area, but fee title-protection could be considered further in the future should some unforeseen event necessitate additional protection beyond the proposed conservation easements. Conservation of these habitats and their associated species would be a cooperative responsibility between the Service and landowners.

The proposed expansion of the Service's easement program for protection of the wildlife habitat of Merced County's Grasslands Ecological Area is consistent with previous wildlife conservation plans, including:

- ❑ *East Grasslands Wildlife Management Area Land Protection Plan, Environmental Assessment* (1985).
- ❑ *Recovery Plan for Upland Species of the San Joaquin Valley* (1998).
- ❑ Central Valley Joint Venture and the *North American Waterfowl Management Plan*.
- ❑ U. S. Shorebird Conservation Plan's *Southern Pacific Coast Regional Shorebird Plan* (2000).
- ❑ California Partners in Flight, *Draft Grassland Bird Conservation Plan* (2000).
- ❑ California Riparian Habitat Joint Venture's, *The Riparian Bird Conservation Plan* (2000).

This expansion of the existing WMA would help achieve the conservation goals outlined in the plans listed above, as it assists in the recovery of migratory waterfowl populations, and helps to stem the continued decline of several priority bird species recognized by Partners in Flight, the U.S. Shorebird Conservation initiative, and the North American Waterbird Conservation initiative. Expansion will also extend protection of valuable wetlands, and assist with protection of resident threatened and endangered species within the project study area.

The study area is located east of the existing Grasslands WMA and Merced National Wildlife Refuge in the heart of Merced County and the northern San Joaquin Valley, California. Three towns frame the proposed easement areas, Merced, Chowchilla, and Los Banos, California. Smaller agricultural communities in the region include El Nido, Dos Palos, and Atwater. Expansion of the WMA would provide nearly continuous land protection between Interstate 5 to the west and State Highway 99 on the eastern boundary of the study area (see Figure 1). The Land Protection Plan (Appendix A) includes a list of properties proposed for inclusion in an expanded WMA.

1.3 Purpose For Action

The purpose of the proposed action is to 1) expand protection and management of the existing Grasslands WMA to include key habitats for migratory waterfowl, shorebirds, landbirds, and several endangered, threatened, and rare species; 2) maintain the high biological diversity of Merced County's native grasslands and vernal pools; and 3) establish a protected wildlife corridor across a portion of California's Central Valley.

This conservation easement program is designed to benefit both the agricultural community by protecting agricultural land uses, and the American people by expanding the existing WMA to include increased habitat for migratory waterfowl populations, shorebirds, landbirds of North America's Pacific Flyway, and threatened and endangered species. The proposed expansion of the WMA would represent an important contribution by the Service to conserve the rich and varied natural resources of Merced County's native grasslands (savanna) and vernal pools for the continuing benefit of the American people through a perpetual conservation easement program. The National Audubon Society has listed the entire Grasslands area as an "Important Bird Area," and the Grasslands Water District, the California Department of Fish and Game and the Fish and Wildlife Service have nominated the Grasslands area as an "Internationally Important Wetland" under the Ramsar Convention. These Grasslands have also been designated of international importance by the Western Hemisphere Shorebird Reserve Network.

The study area and greater Grasslands' region supports diverse wildlife habitats including declining native California savanna, rare vernal pools, and riparian corridors along a network of sloughs and creeks. These habitats support numerous federally listed threatened and endangered species on a year-round or seasonal basis including: four freshwater invertebrate species, populations of the San Joaquin kit fox, and blunt-nosed leopard lizard. The Grasslands provide wintering forage for 500,000 to 1,000,000 migratory waterfowl annually, and provide stopover and wintering habitat for over 100,000 migratory shorebirds annually. It is also important habitat for several other priority bird species. Perpetual conservation easements on farmland utilizing wildlife compatible crops allow should for wildlife and the farming community to benefit mutually. Protection of the area under study would also contribute to maintenance of one of the few remaining wildlife corridors across California's Central Valley. The residents of and visitors to the region would benefit from protection and management of these diverse wildlife habitats, abundant wildlife, and the scenic open space of Merced County.

1.4 Decisions To Be Made

This Environmental Assessment (EA) has been prepared to assist the Service's planning and decision making regarding the proposed expansion of the Grasslands WMA. The two action alternatives are designed to accomplish Service planning objectives and goals for assisting with the recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, resident threatened and endangered species, and protecting valuable wetlands within the project study area. These alternatives differ primarily in the size of the area to be protected.

In the EA is an evaluation of alternatives and description of the environmental effects of expanding the approved boundary of the Grasslands WMA for conserving native grasslands, vernal pools, riparian stream corridors, and their dependent flora and fauna. The Service's initial proposal, now referred to as Alternative 2, focused on an approximately 13,800-acre study area east of the existing WMA, comprised primarily of native grasslands and vernal pools. Based on public input received during a public scoping period, Alternative 3 was developed to expand upon Alternative 2, and connect blocks of native grassland and vernal pool areas by including wildlife compatible crop lands and riparian corridors along the sloughs and creeks within the study area. By adding these compatible crop lands and riparian properties, the Service is seeking to establish a more contiguous wildlife corridor across the study area.

Major impact topics assessed for each alternative include: protection of biological resources; land ownership and property values; potential effects to tax revenues; urban development and agricultural conversion; and public use. All action alternatives have received an equal level of analysis.

Based on the analysis documented in this Environmental Assessment, the Service's Manager of California/Nevada Operations (CNO) will determine whether or not the Service should expand the Grasslands WMA. If it is determined that the WMA should be expanded, the Manager, CNO, will also make the following decisions based on the analysis in the EA:

1. Select an approved expanded boundary which best fulfills the purposes for expanding the WMA based on the analysis in this Environmental Assessment.
2. Determine whether the selected alternative would have a significant impact upon the quality of the human environment.

The authorities for this protection effort are the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715d, 715e, 715f-715r) and Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754). The Migratory Bird Conservation Act established the Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The Fish and Wildlife Act authorizes the Service to use funds made available under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601- 4611) to acquire lands, waters, or interests therein for fish, wildlife, and plant conservation purposes.

1.5 Issues Identified and Selected for Analysis

1.5.1 Public Scoping and Issues Identification

The *Proposed East Grasslands Wildlife Management Area Expansion Planning Update #1* was mailed to more than 250 individuals and organizations with an interest in the Grasslands' region in mid-November, 1998. Landowners within the preliminary study area were also contacted through individual notification letters. On December 9, 1998, the Service hosted a two-hour

public workshop in Merced, California to present the Service's preliminary proposal and receive public comment. Public comment workbooks were provided to all participants to facilitate public input. The public was notified of the workshop through both direct mailing of planning updates and news releases throughout central and northern California.

The Service received comments from landowners, agencies, community, organizations, and interested citizens during the public scoping period in late 1998 and early 1999. Based on this public comment and feedback, the Service identified biological, social, and economic concerns that were considered in preparing the draft *Environmental Assessment and Land Protection Plan for the Expanded Grasslands Wildlife Management Area*.

The Service also determined that there was substantial interest on the part of landowners, the scientific community, and environmental organizations to expand the study area from the then 13,800-acre study area to a 49,300-acre area. Landowners outside the initial study area wanted the opportunity to participate in the Service's conservation easement program and notified the Service of important wildlife attributes on their individual properties. The scientific and environmental community provided the Service with evidence indicating important vernal pool complexes, grasslands, riparian corridors, and agricultural lands would not be adequately protected under the 13,800-acre fragmented study area.

The Service therefore sought approval of the Service's Director in Washington, D.C. to expand the study area to approximately 49,300 acres. The Director granted the approval to study this larger area in the spring of 2000. The Service then issued a second planning update and news release to the public inviting interested individuals, agencies, and organizations to participate in public scoping for the larger study area. A public workshop was held in Merced, California on September 6, 2000, where verbal and written comments were recorded. The Service also received written public comment by the mail and via electronic mail. A third planning update was sent in March 2002, using the previous mailing list. A fourth planning update was sent in June 2004 to announce the release of the Draft Environmental Assessment (EA), Land Protection Plan, and Conceptual Management Plan. The EA and associated documents were sent to affected landowners and interested parties in June 2004, and a public meeting was held in Merced on June 21, 2004. Comments from this meeting as well as other written comments received during the public comment period were used to update this EA. Responses to comments are presented in Chapter 6.

1.5.2 Issues to be Addressed

Impact topics identified by the Service during the planning and public involvement process were selected for analysis within this EA. Of particular focus for the EA were social and economic issues related to land ownership, property taxes, and public use; wildlife conservation issues such as protecting wildlife habitat and movement corridors from urban and agricultural development; and physical environment concerns such as preservation of open space and vernal pools. The Service reviewed all of the comments received during the public scoping period for relevance in development of this EA. Based on the public involvement process, the following issues were

considered in preparing the EA.

1.5.2.1 Physical and Biological Issues

The issues described below have been addressed when the Service added Alternative 3 as an option:

Creek and Slough Protection - Environmental groups and wildlife biologists were concerned that creeks and sloughs of the study area were declining and not protected from alteration and development.

Small Grain Agriculture and Pasture Land - Several landowners suggested that additional agricultural lands such as small grain agriculture and irrigated pasture lands should be included within the study area because these lands provide important wildlife benefits.

Vernal Pool Protection - Environmental groups and wildlife biologists were concerned that several areas containing important vernal pool habitats were not included within the preliminary study area and suggested that the study area be expanded to include these physical features.

Wildlife Corridor Protection and Restoration - Several individuals suggested that the existing creeks and sloughs should be included in the protected area to connect blocks of native grasslands and vernal pools. Several individuals recommended that riparian habitat along the area's creeks and sloughs be restored along their length to provide a more viable wildlife corridor across the study area.

Habitat Protection - Conservation groups and individuals believed that there is a need to expand the WMA to include larger contiguous blocks of habitats capable of protecting the region's biological diversity and endangered and threatened species. Conservation groups also supported expanding the WMA to protect the study area from urban development and conversion to more intensive agricultural uses and to aid in the recovery of endangered and threatened species.

1.5.2.2 Social and Economic Issues

Land Ownership - Landowners wanted to know if private lands located within the planning area or approved WMA boundaries would be subject to additional government regulation and zoning. Landowners were concerned that their land would be more difficult to sell or be devalued within or adjacent to the planning area or approved expanded boundary. Property owners also wanted to know if the Service would use condemnation to purchase properties and expressed interest in knowing more about the Service's willing seller policy. For further discussion of zoning and regulations, please see sections 2.3.1 and 2.3.2 and Appendix A - Land Protection Plan. The Service has no intention of using condemnation to expand the WMA.

Property Taxes - Citizens wanted to know if lands protected by the Service's conservation easement program would be removed from the county tax rolls. Lands protected by a Service Conservation easement would not be removed from the county's tax rolls. Please see section 3.3.5 and Appendix A - Land Protection Plan for further discussion.

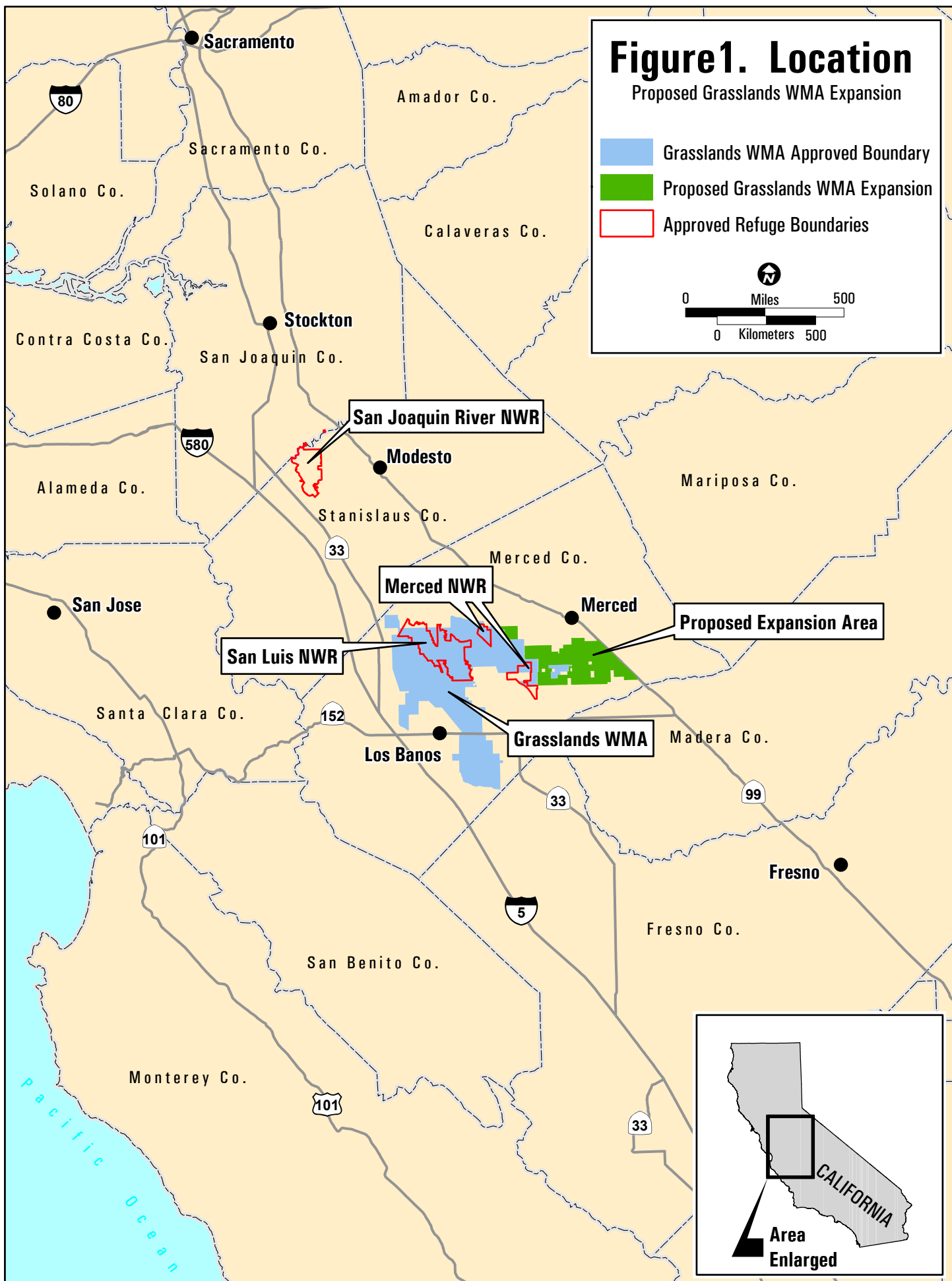
Agriculture Production and Availability of Jobs - Landowners were interested in what types of agricultural crops would be appropriate under Service conservation easements. Please see section 3.2.2 for a sample list, which is not intended to be all-inclusive. Other species may be desirable under some circumstances.

Public Use - Individual landowners expressed concern regarding increased public access including hunting and associated liability for public use on private lands within the boundary. They wanted to know if public use is allowed under a Service conservation easement. All access is controlled by the landowner, and no public use is dictated by easement. Please see section 3.3.6 and Appendix A - Land Protection Plan and Appendix B - Conceptual Management Plan for discussion.

1.5.3 Issues Not Selected for Detailed Analysis

Because archaeological resources are currently protected under existing archeological and historical authorities and regulations, effects on archeological and historic resources from implementing either of the action alternatives would not be expected to differ significantly from the no action alternative. Thus this topic will not be evaluated further in this environmental assessment.

Because land ownership would remain unchanged and there would be no changes in property taxes, these topics will not be evaluated further in this environmental assessment. Since all access is controlled by the landowner and would not be subject to an easement, this topic will not be evaluated further in this environmental assessment.



2 ALTERNATIVES

2.1 Introduction

Chapter 2 describes three alternatives: the No Action alternative and two action alternatives that would expand the Grasslands WMA boundary and provide the Service authority to acquire an interest in additional lands as part of the WMA. Under the no action alternative, the refuge boundary would not be expanded and the Service would not pursue acquiring additional conservation easements.

This EA, the Land Protection Plan (Appendix A), and the Conceptual Management Plan (Appendix B) describes the Service's involvement in general terms because this is a decision-making document for the primary purpose of expanding an existing WMA land acquisition boundary and to offer the Service's conservation easement program to additional landowners whose properties supports wildlife habitat of national importance. Under both of the action alternatives, private ownership and land use in the study area will not substantially change if the Service expands its existing conservation easement program.

2.2 Process Used to Develop the Alternatives

A team of Service and other resource specialists considered the following elements when they developed the alternatives for this project: (1) verbal comments provided during informal public scoping between 1998 and preparation of this document; (2) issues raised during meetings with various agencies, organizations, elected officials, and individuals during the informal scoping process; (3) goals of ongoing programs to benefit federally listed species including the *Recovery Plan for Upland Species of the San Joaquin Valley* (Service, 1998); (4) waterfowl management goals and objectives of the *North American Waterfowl Management Plan* and Central Valley Joint Venture Program; and (5) the mission of the Service to conserve, protect, and where necessary recover the nation's fish, wildlife, and plant resources for the enjoyment of present and future generations.

The Service also considered a variety of land protection methods in developing the range of alternatives, described in the Land Protection Plan (Appendix A). The Service believes that the acquisition of conservation easements represents the minimum possible interest or rights in lands and waters needed to retain the land in private ownership while still meeting habitat protection objectives.

A reasonable range of alternatives to expand the Grasslands WMA in size from 13,800 acres to approximately 46,400 acres was explored and objectively evaluated. Limitations were identified based upon the three purposes identified in Section 1.3 above. With these purposes in mind, extending the project area east of Highway 99 was considered impractical because the highway itself is a significant barrier to wildlife movement, and the physical habitat changes due to human actions and elevational differences (non-compatible crops and drier conditions). Extending the

area further to the north was eliminated because the sphere of influence of the City of Merced is nearly at the proposed boundary. A westerly extension is not necessary, as the existing WMA is situated there. An extension toward the south beyond Chamberlain Road was considered impractical due to the presence of more intense agricultural practices, less wildlife compatible crop lands, and a marked decrease in native habitats.

Of primary importance are the few remaining properties with native habitats in the proposed expansion area. Both action alternatives maintain the same level of protection for these properties, as native habitats within this area are extremely valuable for the species that depend upon them.

The largest alternative (Alternative 3) was developed due to the support of the farming community, which generally supports the easement program in this area. Alternative 3 includes lands identified in Alternative 2, and supports the three goals of promoting wildlife compatible agricultural easements that encourage management for migratory waterfowl, protecting riparian habitat for native species and landbirds, and protecting an east-west migratory corridor in this section of the Central Valley.

2.3 Alternatives Considered but Determined to be Impractical

Several land protection proposals were discarded during the scoping process because they were not feasible, would not reasonably meet the Service's purpose and stated need for the project, or they were not suitable for inclusion in the refuge system. These proposals included requests from landowners to consider additional properties that were substantially outside the project study area, and therefore did not meet the identified purpose and need of the action. Other alternatives considered included:

- ☐ Fee acquisition of the lands on a willing seller basis, which would prove to be too costly. The Service does not anticipate, nor propose fee-title acquisition at this time for the project study area, but fee title-protection could be considered further in the future should some unforeseen event necessitate additional protection beyond the proposed conservation easements.
- ☐ Expanding the study area beyond the identified limits, thereby including lands that did not meet the purposes of the action, resulting in larger than acceptable gaps within the boundaries. These gaps also did not meet the purposes of the action because they negated the benefits of a migration corridor.
- ☐ Using a combination of Alternative 2 and incorporating only lands with streams. This alternative was very similar to Alternative 3 because, in order to protect and potentially restore the streams identified, a majority of the lands already identified in Alternative 3 would need to be incorporated into the Grasslands WMA.

2.4 Description of Alternatives

2.4.1 Alternative 1 - No Action - (0 acres)

The No Action Alternative represents no change from the existing management of lands in the study area. Under this alternative, the Service would not acquire interest in the lands in the study area for the purpose of expanding the Grasslands WMA.

The distribution, general location, and extent of land use in the study area and vicinity would be guided by the Merced County General Plan and zoning codes. The General Plan is the official overall policy statement of the County relating to land use and planning issues and provides a broad outline of future land use patterns. The zoning ordinance regulates land use by dividing the unincorporated areas of the County into districts or zones and specifies the uses that are permitted or prohibited within each district. Under the No Action Alternative, existing land uses in the study area would remain unchanged in the short term. However, long-term protection and restoration of the area's wildlife habitat would not be likely without some type of incentive to the landowners.

2.4.2 Alternative 2 - 13,800-Acre Expansion

Under Alternative 2, the Service would expand the approved Refuge Boundary by approximately 13,800 acres from approximately 36,550 acres to 50,350 acres and seek to protect wildlife and native habitats through acquisition of native grassland and wetlands (see Figure 1). Under this alternative, the Service would seek habitat protection through conservation easements (for specific parcels included see Appendix A, Table 1). With the protection of additional native grasslands and vernal pool habitat, the Service would also be contributing to protection and recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species.

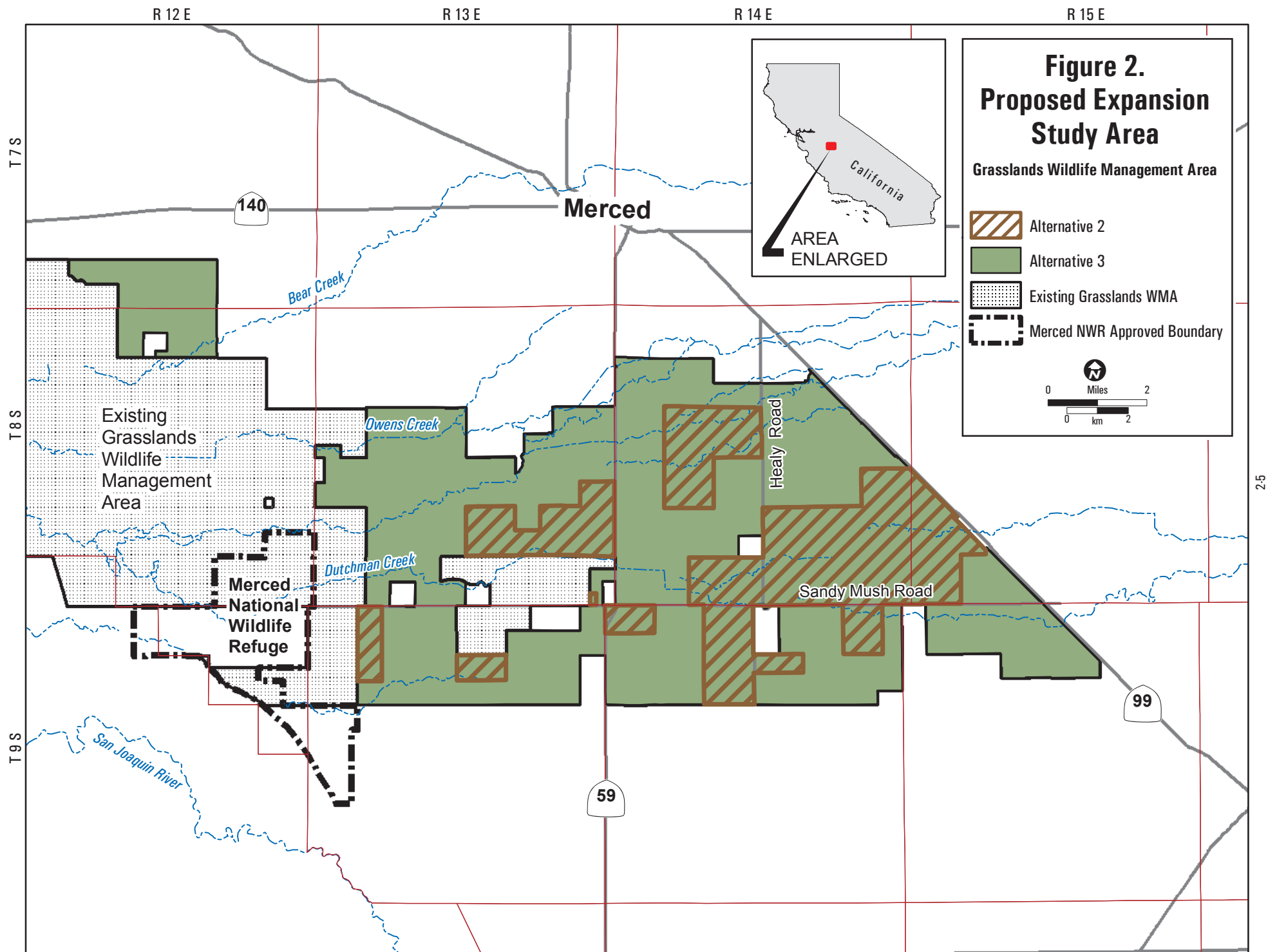
The current approved Grasslands WMA boundary excludes large blocks of native grasslands and vernal pool habitat that supports shorebirds and migratory waterfowl of North America's Pacific Flyway and federally listed threatened and endangered wildlife species. Protection of the study area through perpetual conservation easements would assist in achievement of recovery goals for the wildlife that use this area. Expansion of the boundary would also assist somewhat in the protection of a wildlife migratory corridor across the San Joaquin Valley.

As with the No Action Alternative, under Alternative 2, the properties would remain in private ownership with property taxes and land use largely unchanged. Approval of the expanded WMA land acquisition boundary does not grant the Service jurisdiction or control over lands within the acquisition boundary, and it does not automatically make lands within the boundary part of the National Wildlife Refuge System. Lands would not become part of the WMA or the System unless the Service has purchased an interest in a property from a willing seller.

2.4.3 Alternative 3 - 46,400-Acre Expansion (Preferred Alternative)

Alternative 3 includes lands identified in Alternatives 2, with the addition of 32,600 acres including wildlife compatible crop lands, pasture lands, and local creeks and sloughs (see Figure 2). These additional lands would increase protection of vernal pools and native grasslands by connecting the large blocks of grasslands and vernal pools included in Alternative 2, and provide a contiguous corridor for wildlife migration across the study area. Creeks and sloughs have been included in this alternative, and opportunities for riparian restorations are expected to become available. Farming with wildlife compatible crops would be supported with this alternative.

These lands would be protected through perpetual conservation easements and would assist in achievement of recovery goals for migratory waterfowl, shorebirds, and federally listed threatened and endangered wildlife species which occur within the study area at the maximum level considered. As with Alternative 2, lands would not become part of the WMA or National Wildlife Refuge System upon establishment of the new boundary, unless the Service purchased an interest in the property on a willing seller basis.



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3 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the physical, biological, social, and socioeconomic factors within the Grasslands WMA expansion study area which could potentially be affected by implementing the action alternatives. The study area for the proposed project comprises approximately 46,400 acres within the north central San Joaquin Valley of Merced County. Lands within the study area are primarily native grasslands, seasonal wetlands (vernal pools), Central Valley riparian habitat, and irrigated pasture land that support both a diversity of native wildlife and cattle grazing operations. While the boundaries for the two action alternatives were developed to exclude properties that have been developed into incompatible crops, fish farms, chicken ranches, urban infrastructure, and other areas that have lost much or all of their natural resource value, some of these properties may occur within the study area due to ongoing land use changes in the area.

3.2 Physical and Biological Environment

The weather in the area can be characterized as a dry, mild, Central Valley climate. During the rainy season (October through April), the average rainfall is 12 inches. The average low temperature in the winter is 38 degrees Fahrenheit. The average high temperatures in the summer are typically just below 100 degrees Fahrenheit.

3.2.1 Native Grasslands (California Savanna)

The predominate vegetation community found within the proposed study area is annual grassland, also known as California savanna. The annual grassland habitat occupies what was once native grassland, which historically supported perennial bunch grasses.

Today this habitat is composed primarily of annual plant species. The structure and appearance of these grasslands depend largely on seasonal weather patterns and levels of livestock grazing. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring. Large amounts of standing dead plant material can be found during summer in wet years on areas which are not grazed.

Heavy spring grazing favors the growth of the grassland's summer-annual forbs and reduces the amount of standing dead materials. Because these are important food plants for many wildlife species, livestock grazing is generally beneficial for terrestrial wildlife.

Reptiles that breed in the annual grassland habitat include the western fence lizard, common garter snake, western rattlesnake, and the endangered blunt-nose leopard lizard. Mammals that inhabit the area include the black-tailed jackrabbit, California ground squirrel, western harvest mouse, California vole, badger, and coyote. The endangered San Joaquin kit fox is also found in

and adjacent to this habitat. Common birds known to breed in annual grasslands include the burrowing owl, short-eared owl, horned lark, and western meadowlark. This habitat also provides important foraging habitat for the turkey vulture, northern harrier, American kestrel, white-tailed kite, and prairie falcon. The grasslands provide wintering forage for 500,000 to 1,000,000 migratory waterfowl annually.

3.2.2 Agriculture Crop Fields

A significant number of farms produce wildlife compatible crops in the study area, and since most harvesting equipment leaves behind some waste grain or crop, migratory waterfowl, cranes, and other migratory birds take advantage of this bounty. There are many farming practices that benefit wildlife, such as; managing specific crops, timing of harvest, using fallowed fields, taking advantage of non-farmed areas, or utilizing water as a management tool. Many farmers in the study area currently use these practices. The conservation easement program is designed for the farmer to profit while managing their farmlands for the benefit of wildlife. Wildlife compatible crops include wheat, barley, oats, milo, clover, alfalfa, vetch, rye, safflower, sudan, millet, triticale, and sorghum.

3.2.3 Pasture Lands

Pasture vegetation is a mix of perennial grasses and legumes with the mixture varying according to management practices such as soil type, type and level of livestock grazing, irrigation, fertilization, and weed control. Some farms in the study area include irrigated pasture in their crop rotation system. These are therefore frequently included in the category of agricultural lands.

Pasture lands consisting of perennial grasses support a variety of wildlife species. Given adequate vegetation at the onset of the nesting season, ground-nesting birds, including waterfowl, pheasant, and sandhill crane; nest in pastures. Flood irrigation of pastures provides feeding and roosting sites for many shorebirds, wading birds, waterfowl, and raptors. The Aleutian Canada goose requires pastures that are sufficiently grazed to keep them low and open.

3.2.4 Vernal Pools

Vernal pools are seasonally flooded depressions found on ancient soils with an impermeable layer such as hardpan, claypan, or volcanic basalt. The impermeable layer allows the pools to retain water much longer than the surrounding uplands. Vernal pools often fill with rainfall and empty by evaporation several times during California's rainy season. Only plants and animals that are adapted to this cycle of wetting and drying can survive in vernal pools over time. These specialized plants and animals are what make vernal pools unique. As winter rains fill the pools, freshwater invertebrates, crustaceans, and amphibians emerge. Some vernal pool plants use special floating leaves and air-filled stems to stay afloat and some even flower underwater. Vernal pool plant and wildlife species serve as a food source that attracts and supports migratory waterfowl populations of North America's Pacific Flyway that winter in the San Joaquin Valley.

Due to the loss and decline of vernal pools across the Central Valley many of these unique species have become rare and listed as federally threatened or endangered species. Vernal pools also provide critical wintering habitat for migratory waterfowl and shorebirds of the Pacific Flyway.

There are approximately 1,016,000 acres of vernal pool complexes of more than 40 acres in the Central Valley of California, down from a historical 4,000,000 acres (Holland, 1978). Of this, approximately 58,200 acres (6 percent) are protected on public lands.

3.2.5 Threatened and Endangered Species

Four threatened or endangered species of freshwater crustaceans are known to occur in vernal pools within the study area. These species include: vernal pool tadpole shrimp (*Lepidurus packardii*); vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*Branchinecta conservatio*), and longhorn fairy shrimp (*Branchinecta longiantenna*).

Vernal pools and native grasslands of the study area also support populations of the endangered blunt nosed leopard lizard (*Gambelia [=Crotaphytus] sius*), San Joaquin kit fox (*Vulpes macrotis mutica*), and hairy Orcutt grass (*Orcuttia pilosa*). Colusa grass (*Neostapfia colusana*), listed as threatened, may also be found in the area.

The Recovery Plan for Upland Species of the San Joaquin Valley (1998) covers 11 species federally-listed as endangered or threatened. Two of these wildlife species, the blunt-nosed leopard lizard and San Joaquin kit fox, are or were historically found within the proposed WMA expansion area. Approved recovery plans were previously prepared for these two species in 1985 and 1983 respectively. *The Recovery Plan for Upland Species of the San Joaquin Valley* (1998) represents a revision of the earlier recovery plans. The Recovery Plan identifies the East Grasslands study area as important to the recovery to these two species. Under “Recovery Action,” the Recovery Plan specifically recommends protection of “...natural lands along Sandy Mush Road and in the wildlife refuges and easement lands of Merced County . . . through acquisitions, easement, or safe harbor initiatives.”

3.2.6 Wintering Migratory Waterfowl

Between 500,000 and 1,000,000 migratory waterfowl or 25 percent of the Central Valley’s population winters in the grassland complex of Merced County including 19 species of ducks and 6 goose species. Fifteen species of waterfowl commonly use San Joaquin habitats in winter. Concentrations of five species of waterfowl have been recorded as greater than 50 percent of the wintering waterfowl in California. These five species using grasslands’ habitats extensively in winter are gadwall (65 percent), green-winged teal (79 percent), cinnamon teal (94 percent), northern shoveler (58 percent), and Aleutian Canada goose (98 percent). The area also provides important habitat for the Pacific white-fronted goose, cackling Canada goose, Ross goose, and tundra swan populations. The proposed Grasslands WMA expansion area is considered an important part of this grassland complex.

The waterfowl that use the grasslands during the nonbreeding period use the grasslands' habitats either as a southern terminus for their annual movements or as a stopover site as they move to or from habitats at more southern locations. Species such as the cackling Canada goose, Aleutian Canada goose, lesser snow goose, and Ross goose use the grasslands as a southern terminus during their annual movements. In contrast, species such as the northern pintail, white-fronted goose, and cinnamon teal use the grasslands' habitats as a southern terminus but also as a stopover during migration to wintering habitats in Mexico. Waterfowl also breed in the grasslands, the most common nesting species are mallard, gadwall, and cinnamon teal (Fredrickson and Laubhan, 1995).

3.2.7 Shorebirds

In winter and spring, the Central Valley supports more shorebirds than any other inland site in western North America, supporting tens of thousands of shorebirds. In fall, it is the second most important inland site to shorebirds after Great Salt Lake, Utah (Page and Shuford, 2000). Within the Central Valley, the Grasslands Ecological Area has been designated an "International Reserve for Migrant and Wintering Shorebirds" by the Western Hemispheric Shorebird Reserve Network. The National Audubon Society has listed the entire Grassland area as an "Important Bird Area" and the Grasslands Water District, California Department of Fish and Game, and the Fish and Wildlife Service have nominated the area as an "Internationally Important Wetland" under the Ramsar Convention.

Species with regionally important populations in the Central Valley are the black-bellied plover (winter, spring), snowy plover (winter), killdeer (winter, summer), mountain plover (winter), black-necked stilt (fall-spring), American avocet (fall-spring), greater yellowlegs (fall, winter), whimbrel (spring), long-billed curlew (fall, winter), western sandpiper (spring), least sandpiper (winter), dunlin (winter), and long-billed dowitcher (fall-spring).

The Central Valley is one of only a few key wintering areas in the world for the mountain plover, which was once proposed for listing under the Endangered Species Act and is now a species of conservation concern (USFWS, 2002). The Central Valley also hosts two bird species of special concern in California, the snowy plover and the long-billed curlew (CDFG, 1992). Three shorebirds, American avocet, black-necked stilt, and killdeer remain on grasslands habitats to breed.

At least 15 waterbird species, other than shorebirds and waterfowl, use grasslands habitats, and 8 of them breed in the area. The most abundant are great blue heron, common moorhen, and sora rail.

3.2.8 Other Wildlife Use

Birds of Conservation Concern (USFWS, 2002), California Bird Species of Special Concern, and other priority species rely on habitats in the Grasslands, including burrowing owl, tricolored blackbird, white-faced ibis, in addition to several species of shorebirds already mentioned. Several grassland species that could benefit from this expansion are also focal species in the

Partners in Flight Grassland Bird Conservation Plan, including white-tailed kite, northern harrier, ferruginous hawk, grasshopper sparrow, and savannah sparrow.

Mammalian residents of the grasslands include the endangered San Joaquin kit fox, black-tailed jack rabbits, cotton tailed rabbits, coyotes, muskrats, raccoon, opossum, striped skunk, and California ground squirrel. Various small rodents are also common residents.

The sloughs, creeks, and canals contain such fish species as bullhead and channel catfish, striped bass, threadfin shad, and carp. These species also occur in the various marsh areas when they are flooded. Invertebrates, such as freshwater clams, crayfish, and numerous insects also occur in the grasslands study area.

3.3 Social and Economic Environment

There are no urban incorporated communities within the proposed addition boundaries. The following describes the surrounding community:

3.3.1 Merced County

Merced County covers approximately 1,234,490 acres. The 1995 population estimate for Merced County totaled 202,789 people. The City of Merced, the nearest urban center to the study area, is the County seat and had a population of 65,000 in the year 2000 (City of Merced, 2002).

Employment figures in 1997 for Merced County area as follows: services, 13,155; retail trade 12,262; manufacturing, 10,368; farming, 9,310; agricultural services, 4,343; real estate, 4,029, military, 3,519; construction, 2,759; wholesale trade, 1,993; and federal civilian, 1,010 (Merced County Economic Profile).

The new University of California, Merced campus, now in the planning stages, is projected to have a student population of 25,000 and would be expected to provide a strong beneficial effect to the economy of Merced County. The project is likely to result in both an increase in jobs and job diversity as well as contribute to the urban growth of Merced.

3.3.2 Merced County General Plan and Williamson Act Program

The County General Plan designates lands in the study area as open space with value as pasture land, row crops, and wildlife habitat. On July 25, 2000, the Merced County Board of Supervisors approved implementation in Merced County of the *California Land Conservation Act of 1965*, better known as the *Williamson Act*. The program, in place in a majority of California's 58 counties, provides tax reductions for lands under contract in exchange for maintaining land in agricultural uses for a period of ten years. Under the Act the state provides payments to the county to cover lost property tax revenues. The agricultural preserve established by Merced County for the Williamson Act program, overlaps with the Service's proposed expansion area for the Grasslands WMA.

In fact, the Service's conservation easement program and the Williamson Act agricultural preservation program overlap and complement each other in many counties throughout California. Properties within a WMA easement area remain eligible for the Williamson Act program. Landowners whose property falls within a Service WMA and the Williamson Act program can be compensated by both programs for maintaining their properties in agricultural production while providing benefits to California's wildlife.

3.3.3 Agricultural Production

Merced County consistently ranks as one of the state's top ten agricultural counties, producing in excess of \$1.5 billion in gross annual income. Merced County is a leading producer of milk, almonds, chickens, cotton, alfalfa, grapes (wine), tomatoes, cattle, eggs, and sweet potatoes. There are approximately 2,879 farms in Merced County on 978,831 acres of land. In the year 2000, the total value of agricultural production in Merced County was over \$1.5 billion (National Agricultural Statistics Service, 2001).

In addition to wildlife compatible crop lands, much of WMA expansion area supports the cattle industry by providing both native grassland and irrigated pasture land.

3.3.4 Land Ownership

Alternative 2 encompasses 48 privately owned tracts. Alternative 3 includes those tracts within alternative 2, plus an additional 105 privately owned tracts. The Land Protection Plan includes a listing of these individual parcels (Table 1). No new or additional zoning or land-use regulations would be created by the Service within the approved Refuge boundary of the proposed addition or on neighboring lands. For lands incorporated into the WMA, land use would remain largely the same. Some properties have been excluded from the proposed WMA expansion because land use on these properties was incompatible with refuge purposes (correctional facility, aquaculture facility, turkey farm, dairy) or the landowner specifically requested removal from consideration.

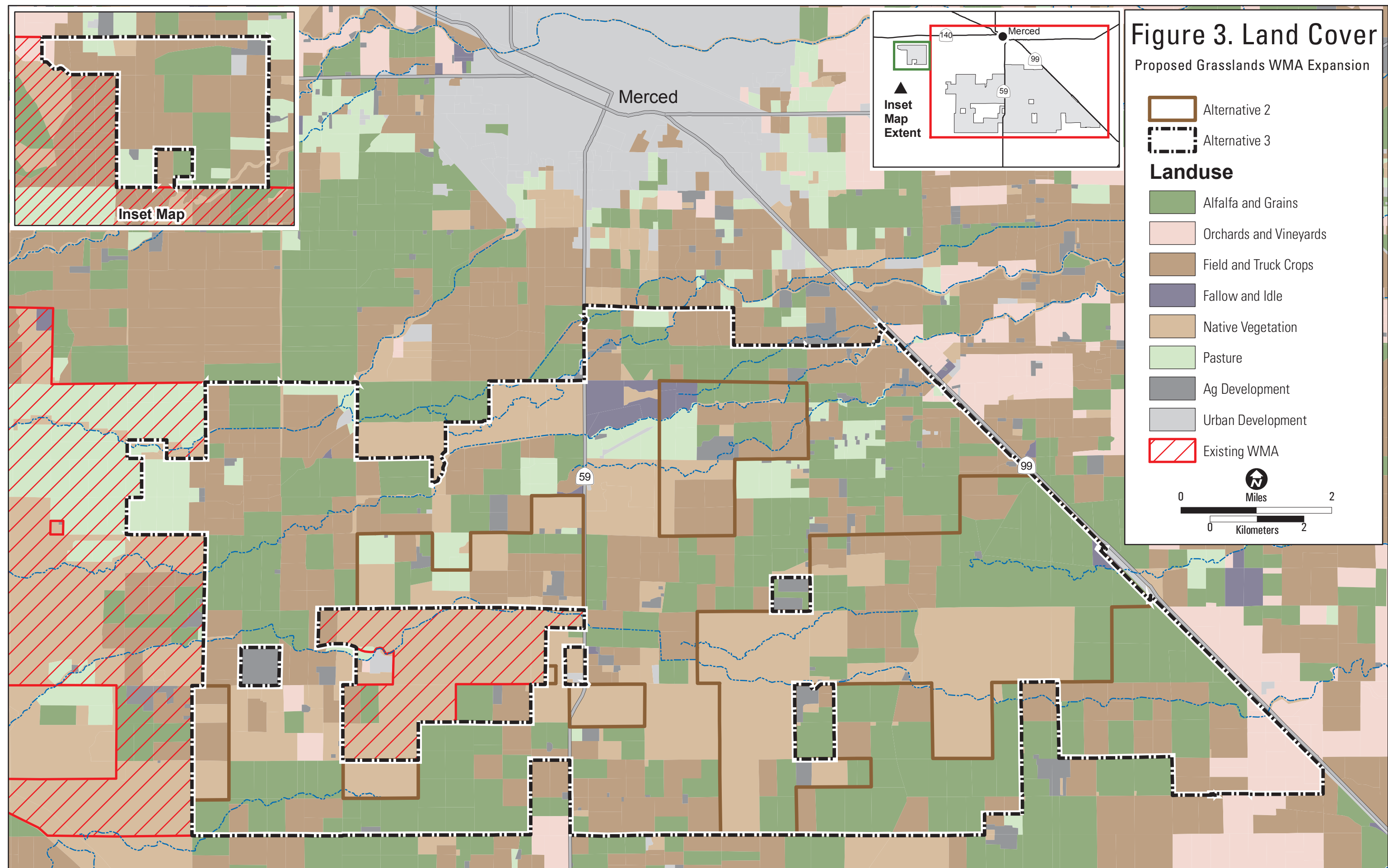
3.3.5 Property Tax

Merced County collects property taxes on private land within the proposed addition to the Grasslands Wildlife Management Area. The California Land Conservation Act, also known as the Williamson Act, enables counties and cities to designate agricultural preserves and offer preferential taxation to agricultural landowners based on the income-producing value of their property in agricultural use, rather than on its assessed value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum 10-year period. Contracts are renewed annually for 10 years unless a party to the contract files for nonrenewal or petitions for cancellation. In 2001, there were approximately 333,000 acres of Williamson Act lands in Merced County (Department of Conservation).

The purchase of conservation easements on private land by the Service would not reduce property tax revenues to Merced County, because the lands would remain in private ownership and subject to state or local taxes or assessments.

3.3.6 Public Use and Wildlife Dependent Recreational Uses

All lands within the proposed study area are privately owned. The current landowners do not allow recreational use by the general public. Public use of these lands would remain closed to the general public, because the Service would not purchase public access rights. Wildlife viewing on these lands is available along the network of county roads that cross the study area. Hunting opportunities would remain under the landowners' control.



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4 ENVIRONMENTAL CONSEQUENCES

4.1 Alternative 1 - No Action

The No Action Alternative represents no change from the existing management of lands in the study area. Under this alternative, the Service would not acquire interest in the lands in the study area for the purpose of expanding the Grasslands WMA.

The distribution, general location, and extent of land use in the study area and vicinity would be guided by the Merced County General Plan and zoning codes. The General Plan is the official overall policy statement of the County relating to land use and planning issues and provides a broad outline of future land use patterns. The zoning ordinance regulates land use by dividing the unincorporated areas of the County into districts or zones and specifies the uses that are permitted or prohibited within each district. Under the No Action Alternative, existing land use patterns in the study area would remain under the authority of Merced County.

Long-term protection and restoration of the area's wildlife habitat would not be likely without some type of incentive to the landowner. Fragmentation of the existing natural habitat is likely to continue without landowner incentives. Two forces are at work in removing suitable wildlife compatible habitats from within the Grasslands, they are urban expansion, and conversion of agricultural lands to non wildlife compatible crops, such as orchards, vineyards, poultry farms, and dairies. Other agricultural conversions to cotton, sugar beets, or tomatoes are not wildlife compatible, but can be converted to wildlife compatible with relative ease and little expense.

4.1.1 Urban Expansion

In the City of Merced's General Plan (1997), the statement "As the city grows, expansion will inevitably encroach upon productive crop land," sums up the threat. Urban expansion such as development of wider transportation corridors, new roads, construction of new electric transmission lines, golf courses, and expansion of wastewater treatment facilities, and other urban impacts are only a few examples of developments that can or have contributed to loss of wildlife habitat and habitat fragmentation.

Another form of urban expansion is land parceled into small rural holdings or "ranchettes" for residential use, where 5 to 20 acres or more are taken out of agricultural production for a single home. These areas are often less hospitable for wildlife due to changes in agricultural types or harassment of wildlife by children or dogs. With the proposed University of California campus in the City of Merced, increased urbanization is likely to occur.

According to the Merced County Association of Governments and the Federal Highway Administration (1997), the capacity needs of Highway 99 are predicted to translate into a need for eight lanes through the Merced/Atwater area. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are also scheduled for enlargement. The current amount

of traffic and the weather conditions, such as fog, make this intersection unsafe. Upgrading these interchanges by increasing the distance of the on-ramps and off-ramps is expected to occur within the next two years. These are two specific examples of how urbanization incrementally expands into the rural landscape. This expansion affects other areas as well. The creation of surfaces impervious to water infiltration increases with developments such as the Highway 99 corridor. This increased impervious surface area leads to changes in the quantity and quality of stormwater and can lead to further impacts to streams, wetlands, and the biota that utilize these areas.

4.1.2 Agricultural Crop Conversion

Irrigated farmland lost ground to large new urban increases as the California Department of Conservation's Farmland Mapping and Monitoring program (FMMP) conducted its 1998 biennial land use inventory. The San Joaquin Valley Region ranked second in the growth of new urban land during 1996-1998 period, with Merced County losing 2,566 acres of farmland during the 1998-2000 period, 2,154 acres during the 1996-1998 period, 2,203 acres during the 1994-1996 period, and 1,393 acres during the 1992-1994 period. Conversion of wildlife compatible crops to orchards, dairies, poultry farms, fish farms, and vineyards is also occurring at a relatively rapid pace in the grasslands.

4.1.3 Impacts of Habitat Loss

If the existing wetland habitat were to diminish in size or be further degraded, the impacts could influence not only the local area but also have an impact on all the migratory species that use the grasslands as a summer terminus during their annual cycle, exploit grasslands' resources during their annual movements between wintering and breeding grounds, or depend on these habitats for breeding (Fredrickson and Laubhan, 1995).

If existing habitats are not protected from conversion or development, waterfowl and shorebirds could be forced into other areas and/or concentrate in increasingly crowded conditions, which, when combined with poor habitat quality and adverse weather conditions, have contributed to the spread of disease. Botulism and avian cholera are chronic waterfowl disease problems. In some years, deaths attributed to botulism in the California have exceeded 250,000 (Hunter et al. 1970). Similarly, avian cholera losses in California during one winter exceeded 70,000 birds (Rosen 1971). According to Friend (1981), the Central Valley, along with three other areas in North America, has developed into an avian cholera enzootic area. More than 33,000 waterfowl killed by disease were picked up during the 1980-81 winter season on public and private lands in California (U.S. Fish and Wildlife Service, unpublished report).

4.1.4 New Traffic, Noise, and Air Quality

If this Alternative is selected, major additions to the existing levels and patterns of traffic within or adjoining the study area are likely to occur, regardless of Williamson Act provisions. In addition, the Service anticipates increases in noise levels as a result of not acquiring conservation easements for the proposed expanded WMA. According to the Merced County Association of

Governments (MCAG 1997), the highest vehicular noise levels are associated with Highway 99. Current noise levels range from 65LdN to 75 LdN at 532 feet and 149 feet, respectively, from the center of the highway, and future levels are projected to increase approximately 3 dB(A) LdN at the same distances.

With Highway 99 proposed to be widened, Caltrans is planning for the movement of kit foxes through culverts under the highway. Unless the land is protected on the other side of these culverts, their usefulness is reduced. Alternative 1 does not protect these lands.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone (O₂) and particulate matter (PM₁₀).

Air pollution is not only a health hazard, it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

A new campus of the University of California is scheduled for the City of Merced, and with it, an associated population increase, including a projected student population of 25,000. As long as Merced County and the San Joaquin Valley populations continue to grow, efforts to control and reduce pollution will be partially offset by increased emissions from more sources (Merced County, 1997).

4.1.5 Soil Erosion and Hydrological Resources

The No Action alternative is likely to result in changes to the hydrologic cycle of the study area. If these agricultural lands are not protected, the area is likely to follow the trend of increased urbanization, as made evident by the earlier discussion of the traffic needs and the subdivisions along the eastern edge of the study area. Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987).

Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988). Urban stormwater input has the potential to change soils chemistry, rendering many toxins available from the storage pool so they can have an immediate effect on wetland soils, both in place and potentially downstream (Cooke, 1991).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, and armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Based on current trends in the country, if No Action is taken (Alternative 1), stream alteration to protect lands affected by upstream urbanization and the associated impacts of increased peak flows is likely to continue. Stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to occur, often requiring removal of vegetation which often results in decreased natural habitats available for wildlife.

4.2 Alternative 2 - 13,800-Acre Expansion

Under Alternative 2, the Service would expand the approved WMA boundary by approximately 13,800 acres from approximately 36,550 acres to 50,350 acres. The goal of this alternative is to protect wildlife and native habitats through acquisition of conservation easements on native grassland and wetlands (see Figure 2). Under this alternative, the Service would seek habitat protection through the purchase of conservation easements. With the protection of these additional native grasslands and vernal pool habitats, the Service would also be contributing to protection and recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species.

Although this proposal is designed to protect native habitats and the species that use these habitats within the expanded Grasslands WMA, by not incorporating a large block of land such as Alternative 3, the effect of habitat fragmentation would likely result in a loss of connectivity of biological processes. The isolation of native habitats can disrupt the interacting functional components of the larger system. Riparian habitats connecting these parcels are not proposed to be protected nor managed for maximum wildlife benefits. One of the purposes for action is to "establish a protective corridor across a portion of California's Central Valley." This goal would not be achieved under Alternative 2. With Alternative 2, farmers would not have the incentive to use wildlife friendly crops, and conversion to other, less wildlife-compatible uses could become financially appealing, thus, furthering fragmentation.

The Central Valley Joint Venture (CVJV) is a cooperative effort of conservation organizations and federal and state agencies formed to implement the North American Waterfowl Management Plan (NAWMP), which sets goals for restoring waterfowl populations. The CVJV goals are to enhance wetland habitats on approximately 300,000 acres of public and private lands; enhance waterfowl habitats on 443,000 acres of agricultural lands; protect 80,000 acres of existing wetlands through acquisition in fee-title or perpetual conservation easements; restore 120,000 acres of historic wetlands acres and protect them in perpetuity by acquisition of fee-title or

conservation easements; secure an incremental, firm water supply that is of suitable quality and is delivered in a timely manner for use by national wildlife refuges, state wildlife areas, and the Grasslands Resource Conservation District; and secure Central Valley Project power for national wildlife refuges, state wildlife areas, the Grasslands Resource Conservation District, and other public and private lands dedicated to wetland management.

Expanding the Grasslands WMA by 13,800 would make a sizable contribution to the habitat protection and management goals of CVJV and NAWMP.

Within the Central Valley, the Grasslands Ecological Area has been designated an “International Reserve for Migrant and Wintering Shorebirds” by the Western Hemispheric Shorebird Reserve Network. The National Audubon Society has listed the entire Grassland area as an “Important Bird Area.” The Grasslands Irrigation District, California Department of Fish and Game, and the Fish and Wildlife Service have also nominated the Grassland area as an “Internationally Important Wetland” under the Ramsar Convention. Expansion of the Grassland WMA would contribute to protection of this internationally recognized shorebird habitat.

The predominate use of these 13,800 acres of native grasslands is for grazing. Under this alternative it is expected that land use within the project area would remain essentially the same. The local farm economy and rural lifestyle and open space would be maintained in this area due to the Service acquiring perpetual conservation easements. As stated previously, there are many pressures to convert these lands for other uses.

4.2.1 New Traffic, Noise, and Air Quality

The proposed expanded Grasslands WMA is not expected to generate any major additions to the existing levels and patterns of traffic within or adjoining the study area. In addition, the Service does not anticipate any major increases in noise levels as a result of acquisition of conservation easements for the proposed expanded wildlife management area. Similarly, the Service does not anticipate any changes to air quality within the 13,800-acre expansion area because land use would remain largely the same as existing conditions. These determinations have been made based on existing conditions associated with the now established Grasslands WMA. However, increases in traffic, air, and noise are expected under to occur on lands not incorporated into the proposed expanded WMA. This alternative would lead to the Service implementing a program that is expected to maintain the status quo of more than 13,800 acres.

If this Alternative is selected, continued additions to the existing levels and patterns of traffic adjoining the study area are likely to occur. As more development occurs along Highway 99, the creation of surfaces impervious to water infiltration will likely increase. According to the Merced County Association of Governments (MCAG) and the Federal Highway Administration (1997), the capacity needs of Highway 99 are predicted to translate into a need for eight lanes through the Merced/Atwater area. The Service anticipates increases in noise levels as a result of not acquiring conservation easements for the proposed 46,400-acre expanded WMA. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are scheduled to be enlarged due to current traffic patterns and safety concerns. The highest

vehicular noise levels are associated with Highway 99. Current noise levels range from 65LdN to 75 LdN at 532 feet and 149 feet respectively, from the center of the highway, and future levels are projected to increase approximately 3 dB(A) LdN at the same distances (MCAG 1997).

With a proposal to widen Highway 99, Caltrans is planning for the movement of kit foxes through culverts under the highway. Unless the land is protected on the other side of these culverts, their usefulness is reduced. Alternative 2 does not protect these lands.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography, and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone (O₂) and particulate matter (PM₁₀).

Air pollution is not only a health hazard; it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

A new University of California campus is scheduled for the City of Merced, and with it, an associated population increase, including a projected student population of 25,000. As long as Merced County and the San Joaquin Valley populations continue to grow, efforts to control and reduce pollution will be partially offset by increased emissions from more sources (Merced County, 1997).

4.2.2 Soil Erosion and Hydrological Resources

The acquisition of lands for the proposed expanded Grasslands WMA is not expected to expose any public infrastructure to geological hazards or unstable geological features. The acquisition of lands would not result in a major increase in soil erosion, nor would demand for surface water or groundwater, relative to existing and proposed urban and agricultural developments. These determinations have been made based on existing conditions associated with now established Grasslands WMA. The 13,800-acre expansion (Alternative 2) is not likely to result in changes to the hydrologic cycle of the study area. Alternative 2 does not protect the riparian areas from further development, nor does it promote the restoration of riparian areas. If these agricultural lands containing riparian areas are not protected, stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to continue, often resulting in decreased natural habitats available for wildlife.

If Alternative 2 is selected, lands within the study area that are not protected by a conservation easement could be developed, leading to increased impervious surface area. Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987). Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing

low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, have been armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Based on current trends in the country, if Alternative 2 is selected, stream alteration to protect lands affected by upstream urbanization and the associated impacts of increased peak flows is likely to occur. Stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to occur, often requiring removal of additional vegetation which could result in decreased natural habitats available for wildlife.

4.3 Alternative 3 - 46,400-Acre Expansion (Preferred Alternative)

Alternative 3 includes lands identified in Alternatives 2, plus an additional 32,600 acres including local creeks and sloughs (see Figure 2). Including these lands within the conservation easement program would increase protection to wetlands, wildlife compatible crop lands, and pasture lands which will connect the large blocks of grasslands and wetlands included in Alternative 2, in addition to providing a corridor for wildlife migration across the study area. These agricultural lands would be protected through perpetual conservation easements and would assist in achieving recovery goals for migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species which occur within the study area (for specific parcels see Appendix A, Table 1).

A significant number of farms utilize wildlife compatible crops in the study area, and since most harvesting equipment leaves behind some waste grain or crop, migratory waterfowl, cranes, and other migratory birds take advantage of this bounty. There are many farming practices that benefit wildlife, such as; managing specific crops, timing of harvest, using fallowed fields, taking advantage of non-farmed areas, or utilizing water as a management tool. Many farmers in the study area use these practices already. By promoting these practices with the use of a perpetual conservation easement program and promoting restoration of riparian habitats, the farming community would benefit by monetary incentives, and the American people would benefit by protection of valuable wetlands and other habitats for use by sensitive resident species, migratory waterfowl populations, shorebirds, and landbirds of North America's Pacific Flyway.

Alternative 3 incorporates large blocks of land which allows for the connectivity of biological processes thus increasing the opportunities for reducing fragmentation. Streams with the potential for riparian restoration flow through the area, connecting farmland and native habitats. These streams are proposed to be protected and allowed to benefit wildlife. These benefits will be in the form of a corridor for movement and as habitat for use as a food source and cover. The incorporation of wildlife-friendly farmlands would support the interacting functional components of the larger ecosystem. Alternative 3 allows the Service to “establish a protective corridor across a portion of California’s Central Valley,” which is one of the purposes of the action. The Recovery Plan for Upland Species of the San Joaquin Valley specifically identifies the need for a linkage between natural land and farmland in the area of Sandy Mush Road, and Alternative 3 meets this need. With Alternative 3, more farmers would have a monetary incentive to use wildlife friendly crops, and conversion to other, less wildlife-compatible uses could be less financially appealing than any other alternative considered.

The Central Valley Joint Venture (CVJV) is a cooperative effort of conservation organizations and federal and state agencies formed to implement the North American Waterfowl Management Plan (NAWMP), which sets goals for restoring waterfowl populations. The CVJV Goals are to: enhance wetland habitats on approximately 300,000 acres of public and private lands; enhance waterfowl habitats on 443,000 acres of agricultural lands; protect 80,000 acres of existing wetlands through acquisition in fee-title or perpetual conservation easements; restore 120,000 acres of historic wetland acres and protect them in perpetuity by acquisition of fee-title or conservation easements; secure an incremental, firm water supply that is of suitable quality and is delivered in a timely manner for use by national wildlife refuges, state wildlife areas, and the Grasslands Resource Conservation District; and secure Central Valley Project power for national wildlife refuges, state wildlife areas, the Grasslands Resource Conservation District and other public and private lands dedicated to wetland management.

The proposed expansion of the Grasslands WMA by up to 46,400 acres would make a substantial contribution to the habitat protection and management goals of CVJV and NAWMP.

Within the Central Valley, the Grasslands Ecological Area has been designated an “International Reserve for Migrant and Wintering Shorebirds” by the Western Hemispheric Shorebird Reserve Network. The National Audubon Society has nominated the entire Grassland area as an “Important Bird Area.” The Grasslands Irrigation District, California Department of Fish and Game, and the Fish and Wildlife Service have nominated the Grassland area as an “Internationally Important Wetland” under the Ramsar Convention. Expansion of the Grassland WMA would contribute to protection of this internationally recognized shorebird habitat.

4.3.1 New Traffic, Noise, and Air Quality

The proposed expanded Grasslands WMA is not expected to generate any major additions to the existing levels and patterns of traffic within or adjoining the study area. In addition, the Service does not anticipate any major increases in noise levels as a result of acquisition of conservation easements for the proposed expanded WMA. Similarly the Service does not anticipate any changes to air quality due to this Alternative because land use would remain largely the same as

existing conditions. These determinations have been made based on existing conditions associated with the now established Grassland WMA. However, increases in traffic, air, and noise would be expected under to occur on lands not incorporated into the WMA. This alternative would lead to the Service implementing a program that is expected to maintain the status quo on 46,400 acres.

With Highway 99 proposed to be widened, Caltrans is planning for the movement of kit foxes through culverts under the highway. Alternative 3 protects the land on the west side of Highway 99. Caltrans has expressed an interest in furthering the ability for kit foxes and other wildlife to cross Highway 99 from east to west at culverts near drainages. Only Alternative 3 includes the potential proposed sites for these culverts.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone (O₂) and particulate matter (PM₁₀). Air pollution is not only a health hazard; it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

The Service anticipates negative changes to air quality because lands outside the study area would be expected to follow the trend of areas in California that are growing in population, particularly since a new campus of the University of California is scheduled for the City of Merced (Merced County, 1997).

As more development occurs along Highway 99, the creation of surfaces impervious to water infiltration will likely increase. According to the Merced County Association of Governments and the Federal Highway Administration (1997), the capacity needs of Highway 99 are predicted to translate into a need for eight lanes through the Merced/Atwater area. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are also scheduled for enlargement. The current amount of traffic, and weather conditions such as fog, make this intersection unsafe. Upgrading these interchanges by increasing the distance of the on-ramps and off-ramps is expected to occur within the next two years. These are two specific examples of how urbanization incrementally expands into the rural landscape. This expansion affects other areas as well. The creation of surfaces impervious to water infiltration increases with developments such as the Highway 99 corridor. This increased impervious surface area leads to changes in the quantity and quality of stormwater and can lead to further impacts to streams, wetlands, and the biota that utilize these areas.

4.3.2 Soil Erosion and Hydrological Resources

The acquisition of lands for the proposed expanded Grasslands WMA is not expected to expose any public infrastructure to geological hazards or unstable geological features. The acquisition of lands would not result in a major increase in soil erosion, nor would demand for surface water or groundwater, relative to existing and proposed urban and agricultural developments. These determinations have been made based on existing conditions associated with now established

Grasslands WMA. Alternative 3 is not likely to result in changes to the hydrologic cycle of the study area. If these agricultural lands are placed under the conservation easement program, the cycle of armoring streams to withstand upstream urbanization is likely to decrease, and naturalization of stream courses for wildlife use would be encouraged.

Under Alternative 3, more farmland would be protected from development and increased impervious surface area than Alternative 2. Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987). Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988). Urban stormwater input has the potential to change soil chemistry, rendering many toxins available from the storage pool so they can have an immediate effect on wetland soils, both in place and potentially downstream (Cooke, 1991).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, have been armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Under the 46,400-acre expansion (Alternative 3), the effects of upstream urbanization and the associated impacts of increased peak flows can be offset by restoring the stream utilizing native vegetation, restoring the natural sinuosity and using a more "wildlife friendly" approach to deal with these impacts, rather than stream armoring methods which are generally less wildlife compatible.

As a result of a conference of experts on animal movement corridors, a report on linkages throughout California was published that addresses this area (Penrod, 2000). The missing linkages report states that in the Central Valley Ecoregion, "waterways have become critical movement corridors," and that underpasses and culverts were identified as linkages. As Caltrans plans to widen Highway 99 and improve culverts for kit fox and other wildlife movement beneath this Highway, the protection of these lands leading to the Merced National Wildlife Refuge and the San Joaquin River become even more important.

Table 1. Summary of Impacts By Alternative

Impact Topics	Alternative 1 No Action	Alternative 2 13,800-Acre Expansion	Alternative 3 46,400-Acre Expansion (Preferred Alternative)
Streams and Waterways	Minimal protection through existing regulations.	Minimal protection through existing regulations	Water quality and habitat quality improvements under voluntary easement program, linkages promoted and protected.
Sensitive Species and Wetlands	Minimal protection through existing regulations.	Native habitats and associated wildlife protected; habitat gaps detrimental to non-avian wildlife.	Native habitats and associated wildlife supported by protected habitats and wildlife-friendly crops under conservation easements. Connected habitats supports movement of non-avian wildlife.
Agricultural Crop Conversion	Some farmland conversion for other uses.	Up to 13,800 acres of wildlife-friendly land uses protected from conversion, gaps allow development.	Up to 46,400 acres of wildlife-friendly land uses protected from conversion, monetary incentive to conserve land uses.
Wintering Waterfowl Habitat	No additional habitats protected	Up to 13,800 acres of habitat protected; gaps allow development.	Up to 46,400 acres of habitat protected. Gaps reduced or eliminated.
Urban Expansion/ Ranchettes	Projected increased farmland conversion	Up to 13,800 acres of farm lands protected; gaps allow development.	Up to 46,400 acres of farm lands protected.

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5 COORDINATION, CONSULTATION, and COMPLIANCE

5.1 Agency Coordination

The proposed expansion of the Grassland Wildlife Management Area has been discussed with landowners, conservation organizations; federal, state, county and city governments; and other local agencies, interested groups, and individuals.

The Service has invited and continues to encourage public participation through the public involvement program consisting of public notices, meetings with potential affected landowners, government agencies, and private organizations.

The EA was available for a 30-day public review and comment period from June-July 2004. A public meeting was held and comments recorded on June 21, 2004 in Merced, California. Responses to comments are included in Chapter 6 of this document

5.2 Environmental Review and Consultation

5.2.1 National Environmental Policy Act

As a federal agency, the Service must comply with provisions of the National Environmental Policy Act of 1969 (NEPA). An environmental analysis is required under NEPA to evaluate reasonable alternatives that will meet the stated objectives, and to assess the significance of possible environmental, social, and economic impacts to the human environment. The environmental assessment serves as the basis for determining whether implementation of the proposal would constitute a major federal action significantly affecting the quality of the human environment. The environmental assessment facilitates involvement of government agencies and the public in the decision making process.

5.2.3 National Historic Preservation Act

The Service has considered the potential effects of expanding the acquisition boundary for the Grasslands WMA on cultural resources of the area. Effects on archeological and historic resources from implementing the action alternative would not be expected to differ significantly from the “No Action” Alternative. A copy of the EA has been provided to the California State Historic Preservation Officer for review and comment. The Service will be required to complete additional compliance under the National Historic Preservation Act and other cultural resource preservation laws for any future restoration and management actions if the proposed WMA is established.

5.2.4 Endangered Species Act

The Service's Division of Planning initiated an informal "Intra-Service Section 7 Consultation," under the requirements of the Endangered Species Act for the expansion of a boundary for the Grasslands WMA.

The Service's Endangered Species Division has issued its concurrence that the proposed project boundary for Alternative 3 is not likely to adversely affect federally listed species and their habitat. The Service will be required to complete additional consultation under Section 7 of the Endangered Species Act for any restoration or management program that would be developed subsequent to expansion of the WMA.

5.2.5 Other Federal Laws, Regulations, and Executive Orders

In undertaking the proposal, the Service would comply with the following federal laws, executive orders, and legislative acts: Farmland Protection Policy Act, Floodplain Management (Executive Order 11988); Intergovernmental Review of Federal Programs (Executive Order 12372); Protection of Historical, Archaeological, and Scientific Properties (Executive Order 11593); Protection of Wetlands (Executive Order 11990); Responsibilities of Federal Agencies to Protect Migratory Birds (Executive Order 13186); Management and General Public Use of the National Wildlife Refuge System (Executive Order 12996); Departmental Policy on Environmental Justice (Executive Order 12898); Hazardous Substances Determinations (Secretarial Order 3127); Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended; Refuge Recreation Act, as amended; and National Wildlife Refuge System Administration Act, as amended.

5.2.6 Distribution and Availability

Copies of the environmental assessment, land protection plan, and conceptual management plan were sent to federal and state legislative delegations, agencies, county and city governments, affected landowners, private groups, and other interested individuals. Planning Update 5 will be sent to federal and state legislative delegations, agencies, county and city governments, affected landowners, private groups, and other interested individuals to notify the public of the Service's decision and availability of final documents (see Appendix C). Copies of this environmental assessment will be mailed to local libraries, the State Clearinghouse, and those requesting a copy from the San Luis National Wildlife Refuge Complex, P.O. Box 2176, Los Banos, California 93635 (telephone 209-826-3508).

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6 RESPONSE TO COMMENTS

In this section, the Service responds to comments received on the draft EA and land protection plan (LPP) for the proposed expansion of the Grasslands Wildlife Management Area. The Service received recorded comments made during the June 21, 2004, public meeting in Merced, California. In addition, the Service received six letters that expressed specific concerns, offered suggestion, or asked questions. Based on these written and oral comments, the Service has amended the draft EA and LPP to clarify areas of concern, correct omissions, and correct minor errors of fact.

6.1 Physical Environment

- One respondent expressed concern over the possible effects of any activities associated with this proposal on the flow of streams, upstream or downstream.

Service Response: Although riparian restoration opportunities are expected to become available under Alternative 3 (preferred alternative), any plantings would be setback from the waters edge, and no in-water work is likely to occur. As with any work in a waterway, in-water work would be subject the U.S. Army Corps of Engineers Clean Water Act permit program. No measurable effects on flooding, either aggravation or attenuation are anticipated. Any restoration work would be on too small of a scale to negatively or positively affect flooding concerns.

6.2 Private Property/Easements

- Concern was expressed over the effect of an easement on adjacent lands. Respondent asked if easement lands imposed restrictions (such as pesticide use restrictions) on adjacent non-easement lands.

Service Response: There will be no additional restrictions imposed on lands adjacent to easement lands. The authority of the Service to acquire conservation easements only allows restrictions, which are agreed to by the Service and the landowner, to be placed on lands subject to the easement.

- One landowner wanted to know if the type of crop planted was negotiable to allow rotation of a wide variety of crops.

Service Response: Crops typically allowed under a Service easement in the Grasslands WMA are limited to grain crops and pasture, i.e. wildlife-friendly crops which will benefit wildlife and are compatible with Refuge purposes as well as the goals of the landowner. The Refuge staff will determine which wildlife-friendly crops would be allowed. Wildlife-friendly crops have already been carefully considered in other easements within the Grasslands WMA, and are likely to remain the same.

- Several respondents asked about the price typically paid per acre for an easement in the area.

Service Response: The Service has not as yet completed an easement appraisal for this area within Merced County. Easement values for waterfowl hunting clubs, or other agricultural easements acquired in the past, located in different parts of the county, may or may not be similar. Therefore, we cannot give a range of values for an easement acquisition until data has been collected, and an appraisal has been completed.

- Several respondents asked what restrictions would be placed on their land if the expansion area was approved.

Service Response: No restrictions would be placed on any land unless a landowner sells a conservation easement to the Service. The specific conditions of an easement are negotiated between the Service and the landowner so that a mutually beneficial easement can be enacted. Typical easement restrictions in the Grasslands WMA include limitations on crop types and rotation periods. (i.e. the Service wants the landowners to grow only grain crops and pasture which benefit wildlife). Development will not be allowed, nor alteration of topography without prior Service approval. There may be limitations on types and amounts of livestock allowed in pasture and riparian areas. The Service obtains the right (but not the obligation) to use the landowner's infrastructure (i.e. pumps, pipelines, ditches, etc), to flood areas where needed in the event the landowner chooses not to flood areas the Service wants to have flooded. When this occurs, the Service pays for operation and maintenance costs.

- One respondent recommended that the EA discuss whether partial conservation easements over farms and ranches will be pursued. In other words, if part of a farm ownership is in intensive crops, while other parts are in wildlife friendly grazing uses, will the landowner have the opportunity to sell easements for those parts of the farm that are wildlife friendly, while maintaining intensive agricultural production on other parts of the farm?

Service Response: Yes, this is done on many easements in the existing area. We are interested in what the landowner wants to offer as a willing seller. We would be most interested in the native pasture/wildlife friendly crop; if the landowner did not want to negotiate the sale of the intensive agriculture lands, those areas would be excluded without affecting negotiations. In addition to habitat type (see Appendix A, Land Protection Plan) many other variables affect the ranking of a property for funding such as size of offering, species benefits, water availability, and proximity to other easement properties. Potential easements shall be prioritized for purchase according to this ranking process (but only if the landowner is a willing seller).

- One respondent asked if fee title acquisition followed by resale to private ownership without the development rights would be an alternative pursued by the Service. If so, will a time restriction be placed on how long the land will be held in public ownership before being resold?

Service Response: The Service does not anticipate, nor propose fee-title acquisition at this time for the project study area, however, fee-title protection could be considered in the future should some unforeseen event necessitate additional protection beyond the proposed conservation easements. If fee acquisition is undertaken, it is highly unlikely that the property would be sold. It is extremely rare for Refuge lands to be sold.

- One respondent asked if purchase of a conservation easement by the Service would result in the loss of agricultural water rights, and if that were so, this effect should be described in the body of the environmental document, including how such a loss would affect future agricultural productivity.

Service Response: No loss of water rights are expected or proposed. Like the existing easement program that was initiated in 1978, the Service does not purchase water rights nor do we contest them. This is between the landowner and the State Water Resources Control Board.

6.3 Effects on the Social and Economic Environment

- A few respondents stated that they believe that expanding the Refuge boundary placed a stigma on the land within the boundary of proposed protection and that designation could influence future decisions by the County Planning staff, hindering future development proposals.

Service Response: The City of Merced has already attempted to limit development in the area. According to the City of Merced's General Plan (Merced Vision 2015), "...growth is limited south of Mission Avenue due to the flood potential, high water table, and productive agricultural areas." In fact, the City's adopted Merced 2030 scenario, "*The Northern City*," directs growth away from more environmentally-sensitive areas to the City's east and west, and toward the lesser agricultural soils and grazing land to the north (page 2-8).

- Several respondents expressed concern that property values would be considerably higher on lands that were excluded from WMA consideration compared to included lands.

Service Response: Based upon past experience, we have found that land values on private lands within or surrounding the Service's land acquisition refuge or WMA boundaries are not influenced by the presence of a Service acquisition boundary. In all instances, landowners both within and surrounding the Service's acquisition boundary have the right and opportunity to continue the existing property use as well as explore other economic uses. The market value of any property is based upon its potential use and what other properties of a comparable nature would be sold for within the market area. Other factors such as local governmental zoning and regulations can have a significant impact on the potential use and market value of an individual property. It is our belief and experience that the existence of the WMA has not resulted in any adverse effects on individual property values.

- One respondent asked if there been have any studies on how the sphere of influence of the new expansion area would affect property values.

Service Response: We are unaware of any studies which have researched this (please see response above).

- It was recommended that Williamson Act lands not be adversely affected, and that the Service create a map showing Williamson Act lands which could be impacted directly or indirectly by the project.

Service Response: The intent of this program is to continue agriculture uses. This is primarily an easement program, emphasizing the continuance of agriculture. As stated in section 3.3.2 of the EA, nothing in this program precludes Williamson Act contracts.

- One respondent recommended that the NEPA document address the loss of agricultural resources, in terms of the allowed (via easement restrictions) agricultural uses of the land compared to the agricultural capability of the soils. It was suggested that, if Prime Farmland, which is capable of supporting high value vegetable row crops, is acquired under a conservation easement and limited to grazing, the marginal decrease in production capacity legally imposed by the easement represents a loss of agricultural resources just as much as would the loss in soil fertility from soil erosion.

The respondent suggested that this kind of land use shift imposed by a restrictive agricultural land conservation easement could also result in a CEQA impact of significance. CEQA Guidelines define agricultural land as Prime Farmland, Farmland of Statewide Significance and Unique Farmland (according to the Department of Conservation's Important Farmland Series map definitions). Restricting Prime Farmland to dry grains or hay production could cause the reclassification of the lands to Farmland of Local Importance, which in turn could trigger a CEQA-defined conversion of agricultural land. (CEQA's definition of agricultural land does not include Farmland of Local Importance.)

Service Response: The respondent has requested the Service assess the production capacity that could be foregone should an intensive agricultural use be precluded by conservation easements in favor of less intensive uses. Since changes in cropping practices are in response to changing agricultural markets, attempting the analysis requested would require the Service to predict future swings in agricultural markets. We believe attempting to predict future market changes would require the Service to make remote and speculative assumptions; thus such an analysis is outside the scope of this environmental assessment. However, it should be noted that it is not the intent of the Service to cause a major shift in agricultural practices in the area. It is the intent of the Service to maintain currently existing agricultural practices that provide benefits to wildlife. The Service is attempting to preserve this region in its current state for future generations to enjoy open space and wildlife within this agricultural/urban complex. It is important to create a program that compensates the agricultural community and those landowners who provide benefits to wildlife resources and the public so this heritage can be perpetually protected for future generations.

Without the easement program, market forces could actually lead to reduced agricultural capacity. Zoning changes in the proposed expansion area have led to conversion of lands to non-agricultural uses of the area, such as a correctional facility, aquaculture facility, and increased housing. The easement program may result in maintaining more agricultural capacity in the proposed expansion area when compared to the potential for non-agricultural land conversions without the program.

- One respondent pointed out that on page 2-3 the EA states that none of the alternatives would result in changes in property taxes. However, elsewhere in the document, it is stated that encroaching urbanization and agricultural intensification warrant the proposed action to protect existing land uses and habitat values. If the latter is true, then it would be expected that conservation easements that prevent economic intensification of land uses would have an adverse impact on future local property tax revenues. In other words, for lands not under Williamson Act contracts, present value of the lands should reflect an incremental speculative value due to growth pressures. Restrictive easements would remove this incremental value and the associated taxes. The respondent recommended that additional analysis attempt to consider this economic impact.

Service Response: Since the Merced General Plan presently limits development of the area and has attempted to keep the rural character of lands south of Mission Boulevard by steering growth away from this area, the Service, by promoting conservation easements is following the lead of the City of Merced. These lands are subject to flooding and may not have the growth pressures inherent with lands outside the proposed expansion area and the incremental value is not as great as other portions of Merced County. We believe this land in its current state (i.e. irrigated pasture) and if it is preserved into the future, will maintain an incremental tax increase over time for that land use and should be acknowledged that this is the choice of the landowner to maintain a certain farming practice not State, Federal, or County agencies.

- Related to the previous comment above, one respondent suggested that, depending on the nature of the conservation easement used, and the change in agricultural land use (i.e., from prime agricultural land use to non-prime agricultural land use), the amount of the State Open Space Subvention entitlement payment to Merced County could be adversely affected by the large scale acquisition of agricultural land conservation easements. For example, the per acre entitlement for land under a Williamson Act contract in a prime agricultural use is \$5 to \$8 per acre, while the entitlement for grazing land can be as little as \$1 per acre. The respondent suggested that the California Department of Conservation and local assessor should be contacted to ascertain whether this could represent a significant economic impact on Merced County.

Service Response: As stated in our response to comments above, the Service would not propose limiting an easement to grazing, unless the owner specified it. Most properties in the “Native Grassland” designation are those that have been unbroken for crops and are currently used for grazing. It is expected that easements on grassland habitats would maintain the integrity of this rangeland and allow grazing. Thus, there would be no change in Williamson Act payment from the current values for that agricultural type. Similarly, we are proposing to maintain land

supporting irrigated pasture and wildlife-friendly crops. Continuation of these land uses will allow landowners to continue to receive the same Williamson Act payments. Land currently supporting orchards, row crops, etc. are low priorities for easements because these crop types do not provide the same level of wildlife benefits as lands supporting native grasslands, irrigated pasture and other wildlife-friendly crops.

- One respondent mentioned that Alternative 1–No Action–notes that urban expansion would continue to result in the loss of agricultural lands. They recommended that the final environmental document provide an estimate for the likely conversion of agricultural lands in the project area without action. Absent existing estimates, one way of accomplishing this would be to correlate past population growth projections and loss of agricultural land for Merced County, and then to estimate future agricultural land conversion based on projected population growth over the next ten to twenty years, and the rate of conversion from past growth.

Service Response: As stated in the EA (page 1-2), Merced County has lost slightly more than 1,000 acres of farmland per year since 1996, and we assume a similar pattern would continue in the absence of the Service’s easement program.

- One respondent suggested that if future fee title or easement acquisition would result in the permanent cessation of agricultural uses on land mapped by the Department of Conservation as Farmland, the resultant loss of agricultural land should be treated as a potentially significant environmental impact under CEQA regardless of the alternative use of the land.

Service Response: As noted in responses to other comments above, agricultural uses are expected to continue on lands within the proposed WMA expansion area rather than be curtailed.

6.4 Land Management and Recreational Use Activities

- Access to fee title lands was requested, particularly to the Arena Plains parcel. Also, the respondent wanted to know why the Service closed the area for waterfowl hunting, since the Arena Plains parcel was hunted in the past.

Service Response: A major reason for not establishing a hunt program when we acquired the Arena Plains Unit was the potential conflict between public hunting operations and the grazing program necessary to meet specific habitat management objectives. The Arena Plains Unit was acquired by the FWS primarily to protect and maintain the unique plant and animal communities associated with the sandy, short-grass habitats and vernal pools found there. In addition, the area provided important winter foraging habitat for sandhill cranes and arctic nesting geese. Cattle grazing is a necessary tool to manage the habitat as short grasslands with minimal thatch build-up. The area is dominated by cool weather annual grasses and needs to be grazed during the same time that waterfowl hunting season occurs. Although the former landowner grazed cattle and leased the area for hunting at the same time, as a private landowner, he had a great deal of control over his lessee regarding any interference with the cattle operation or harming of

livestock. Under a public hunting program the FWS would have less control over the actions of individual hunters. Actions such as leaving gates open, damaging grazing cooperator facilities, or harassing or shooting cattle (or conversely bulls harassing hunters) could result in tort claims against the FWS, injuries to the public, and the compromising of our ability to manage the unique resources at the Arena Plains Unit. This is the same reasoning for not simultaneously hunting and grazing cattle on the rest of Merced NWR and elsewhere at San Luis NWR.

Another reason for not establishing a hunt program on Arena Plains is that there is no dependable water supply. Most of the water for maintaining wetlands on Arena Plains comes from the Atwater Drain if and when available. Under previous ownership, the hunting lease fees provided the funds to turn on wells to supplement flooding of hunted wetlands. That source of funds no longer exists, and additionally the well that supplied the hunted wetlands failed and was abandoned. Lacking that well, many of the Arena Plains wetlands in some years remain dry through much of the waterfowl season. In fact, adequate water supplies are even more limited for Arena Plains today, as is elsewhere in the East Grasslands, due to increased upstream diversions and water conservation.

Another reason for not establishing a hunt program on Arena Plains is the amount of area suitable for hunting would support only a small number of hunters. Even with adequate water supplies, there are only 150 acres of managed wetlands on the 2,446-acre unit. The rest of the area is short-grass uplands or floodplain slough channels that are usually dry during waterfowl season. In addition, the Service did not want to develop goose hunting blinds throughout the uplands because of the disturbance to sandhill cranes and the fact that most of the goose use at Arena Plains occurs in late winter after the waterfowl hunting season.

The restrictions on overall public access to Arena Plains are also a function of concern over sensitive species and the lack of a regular staff presence on the area. Arena Plains makes up most of the remaining unaltered habitat in what was once a much larger natural landscape associated with the Merced River alluvial floodplain. Most of the lands within the floodplain have been converted to row-crop agriculture. Many plant/wildlife communities supported on the habitat at Arena Plain represent remnant populations of natural communities that were once more common on that landscape. There was a great deal of concern that uncontrolled/unsupervised public use would adversely impact many of the unique plant/wildlife communities and rare species found at Arena Plains. Service concerns about adverse impacts to rare plant/wildlife communities by unsupervised public access have become even greater because several plant and animal species associated with vernal pools at Arena Plains have been listed as Federal threatened or endangered species. However, because of the interest expressed by the public in seeing these natural communities, several staff and docent-led tours are conducted at the unit each spring.

A more recent issue involves the overall distribution of sanctuaries within the Grasslands area. There is a desire by waterfowl managers to provide a wider distribution of sanctuaries throughout the Grasslands rather than having them concentrated in the center of the area. This would promote a wider distribution of waterfowl throughout the Grasslands and help hold birds in the general area. The FWS plans to open much of the East Bear Creek Unit of San Luis NWR

and all of the recently acquired Sno-Bird Ranch (both adjacent to Arena Plains) to waterfowl hunting. As a result, all public and privately owned waterfowl habitat in the northern portion of the East Grassland, except Arena Plains, would be hunted. It is important that Arena Plains remain closed to hunting to provide a sanctuary area in that portion of the Grasslands.

6.5 National Wildlife Refuge System and Authorities

- A respondent asked why there are apparent exclusions on the map within the proposed expansion area. It was suggested that an explanation be included in the EA.

Service Response: Some properties have been excluded from the proposed WMA expansion because current land use is incompatible with refuge purposes (correctional facility, aquaculture facility, dairy, and turkey farm) or the landowner specifically requested removal from consideration. This is now explained in section 3.3.4.

- A respondent noted that under both alternatives 2 and 3, it appears that the conservation tool of choice would be the conservation easement to protect high value habitat lands and existing low intensity agricultural uses (wildlife compatible). The respondent suggested that under each of these alternatives a variation in this strategy also be considered, that being use of easements to protect agricultural lands that are not deemed to be in wildlife habitat compatible agricultural uses, but are nonetheless threatened by urbanization and would offer better habitat values than urban use. The difference would be in the nature of the easement agreement. Rather than retiring these lands to less intensive uses, the agreement could stipulate changes to, or incorporation of wildlife friendly agricultural practices that render less wildlife friendly crops to be more conducive to wildlife (e.g., hedgerows, tail water return ponds managed for conjunctive wildlife use, conservation tillage, changes in harvest timing or technology, etc.). If the target lands are under little urban pressure, the easements should be less expensive to purchase, which could free up funding for cost-share with landowners for the change to wildlife friendly agricultural management practices.

Service Response: The legal mandates under which the Service has the authority to carry out this effort are limited to wildlife-related laws (Migratory Bird Treaty Act, Endangered Species Act, etc.); thus, purposes such as protecting open space or maintaining agriculture are not under the Service's jurisdiction. Additionally, funding is always extremely limited and properties much compete well—based on their value to wildlife—in order to be funded. In other words, the benefits to wildlife of preserving a large tract of native grassland/riparian/wetland would likely out-compete the more limited wildlife benefits of the conservation practices listed in this comment. Funding of those types of programs would more likely fall under the purview of the USDA's Natural Resources Conservation Service. Regarding ascertaining values of properties, that is done by appraisals as directed under federal guidelines. The values are typically not influenced by the degree of threat of urbanization. We must purchase property that follows our priority of native habitats, followed by wildlife friendly agriculture, to attain the best value for the resource, and provide compensation for those landowners who maintain these agricultural types.

6.6 Other Comments

- Several respondents suggested updating the land cover map in the EA.

Service Response: The land cover map has been updated.